REMARKS

Claims 1-6, 8, 11-15, 17 and 20 are pending in the application. Claim 1, 5 and 14 are currently amended. Applicants respectfully request for allowance of all the pending claims.

Rejections under 35 U.S.C. §112

Although claim 4 is rejected under 35 U.S.C. §112, second paragraph, Applicants believe that Examiner meant to reject claim 5. Applicants respectfully ask Examiner to correct our belief, if it is incorrect.

In the amended claim 5, the term "comprising" is replaced with "consisting of" in compliance with MPEP 2173.05(h). Thus, Applicants respectfully request that the rejection under section 112, second paragraph, be withdrawn.

Rejections under 35 U.S.C. §103

Claims 1, 2, 4-6, and 11-13

Claims 1, 2, 4-6, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentbale over U.S. Patent No. 6,153,072 to Inoue et al. (hereinafter referred to as "Inoue") in view of U.S. Patent No. 4,722,779 to Yamada et al. (hereinafter referred to as "Yamada"), U.S. Patent No. 4,882,033 to Shibata et al. (hereinafter referred to as "Shibata"), or U.S. Patent No. 5,827,415 to Gur et al. (hereinafter referred to as "Gur").

Independent claim 1, as amended, is directed to an organic contaminant molecule sensor comprising: an electrochemical cell having a solid state oxygen anion conductor, a measurement electrode formed on a first surface of the conductor for exposure to a

monitored environment, and a reference electrode formed on a second surface of the conductor for exposure to a reference environment that is not formed by the solid state oxygen anion conductor.

An exemplary embodiment of the claimed invention can be found in FIG. 1 of the application. In FIG. 1, a solid state oxygen anion conductor 12 has a measurement electrode 14 formed on a first surface of the conductor 12, and a reference electrode 16 formed on a second surface of the conductor 12. The measurement electrode 14 and the reference electrode 16 are exposed to a measurement environment 18 and a reference environment 20, respectively. As shown in FIG. 1, the reference environment 20 is in a gaseous state, rather than a solid state. For example, typical atmospheric air is used as a gaseous reference source of oxygen, although other gas compositions can be used. See, page 8, line 30 – page 9, line 1.

Inoue fails to teach or suggest the claimed reference environment that is not formed by the solid state oxygen anion conductor. Inoue teaches an oxygen reference electrode 14 embedded in a reference environment that is entirely formed by oxygen ion conductive solid electrolyte 12. See, FIG. 2. The electrodes 14 and 15 have a reversible catalytic function, which catalyzes a desorption reaction for desorbing oxygen molecules therefrom in order to introduce oxygen into the solid electrolyte 12, and a recombination reaction for recombining with oxygen in order to make the solid electrolyte 12 releases oxygen. See, col. 17, lines 58-54. The reference environment for the electrode 14 is thus created by the reversible catalytic reactions of the solid electrolyte 12 that surrounding the electrode 14. This clearly differs from the claimed reference environment, which is not formed by the solid state oxygen anion conductor.

Such difference in not obvious, as Inoue requires that reference environment be formed by the solid electrolyte 12 in order to maintain the electrode 14 to be filled with a reference gas of near 100% oxygen. See, col. 21, lines 39-44. Such high level concentration of oxygen is desired by Inoue, because it improves the measuring accuracy and sensitivity of the gas sensor 1. See, col. 21, lines 41-44. In order to achieve such high level concentration of oxygen, Inoue explicitly teaches to cause a small DC current to continuously flow between the reference electrode 14 and the first electrode 15. See, col. 21, lines 34-38. Thus, it would not have been obvious for a person skilled in the art to replace the solid electrolyte 12 with a reference environment, say, formed by atmospheric air, because doing so would defeat the purpose of Inoue.

Yamada, Shibata and Gur are not cited for their teachings of a reference environment that is not formed by formed by the solid state oxygen anion conductor. For the sake of discussion, even if they were, it would not have been obvious for a person skilled in the art to combine Yamada, Shibata or Gur with Inoue for that matter, because a reference environment formed by solid electrolyte is at the heart of Inoue's disclosure, and any substantial change to it would defeat its purpose.

As such, claim 1 as amended is patentable over Inoue in view of Yamada, Shibata or Gur under section 103. Accordingly, claims 2, 4-6, and 11-13 that depend from independent claim 1 and include all the limitations recited therein are patentable over the cited references under section 103, as well.

Claims 3 and 8

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue in view of Yamada, Shibata, or Gur, and further in view of U.S. Patent No.

5,389,225 to Aagard (hereinafter referred to as "Aagard") and U.S. Patent No. 6,551,497 to Gao (hereinafter referred to as "Gao").

As discussed above, claim 1 as amended is patentable over the cited references under section 103. Accordingly, claim 3 and 8 the depend from independent claim 1 and include all the limitations recited therein are patentable over the cited references further in view of Aagard and Gao under section 103.

Claims 14, 15, 17 and 20

Claims 14, 15, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentabler over Inoue in view of Yamada, Shibata, or Gur, and further in view of Harris (Quantitative Chemical Analysis, 5th Ed., 1999, pp. 93-102) and Gao.

Independent claim 14, as amended, is direction to a method of monitoring the amount of organic contaminant introduced into a monitored environment. The method comprises providing an electrochemical cell having a solid state oxygen anion conductor, a measurement electrode formed on a first surface of the conductor for exposure to the monitored environment, and a reference electrode formed on a second surface of the conductor for exposure to a reference environment that is not formed by the solid state oxygen anion conductor.

As discussed above, Inoue fails to teach or suggest "a reference environment that is not formed by the solid state oxygen anion conductor." Yamada, Shibata, Gur, Harris, and Gao are not cited for such reference environment, and cannot be properly combined with Inoue for that matter. Thus, claim 14 is patentable over the cited references under section 103. Accordingly, claims 15, 17 and 20 that depend from independent claim 14

and include all the limitations recited therein are patentable over the cited reference under

103, as well.

CONCLUSION

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicants do not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

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